

Seasonal Response of an Aquatic Macroinvertebrate Community to Salmon Spawning

Jon Honea, Robert Gara, University of Washington*

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This research compares the macroinvertebrate communities upstream and downstream of a waterfall that prevents upstream migration of a large run of chum salmon (*Oncorhynchus keta*) in a small stream, Kennedy Creek in South Puget Sound. It also compares the macroinvertebrate communities in three other streams with barrier falls or paired streams (one with salmon and one without) to determine if the patterns identified from the intensive study of Kennedy Creek occur on other streams. In late summer before spawning by chum, the macroinvertebrate biomass and species composition between reaches with and without spawning the previous year were not significantly different. After chum spawning, the macroinvertebrate community was substantially reduced in numbers and biomass. Over the next 3 months, growth rates in the salmon reach were greater than those in the reach above the falls particularly for scrapers and filter-feeders. Rapid recovery of numbers and biomass to levels equal to or greater than those in the upstream reach was fueled by salmon-derived C and N as indicated by stable isotope analysis. Six months after spawning, although residual salmon C and N were detected in macroinvertebrates in the salmon reach, there was no significant difference between reaches in numbers and biomass.